Description for the general public

It is a cognitive psychology achievement that we understand what are the internal workings of the so called “black box”, as the behaviorists described the human mind, in the link between external stimulus and the human response to that environmental stimulation. Interestingly, in order to explain the stimulus-response link, cognitive psychology based on ingeniously designed behavioral experiments. Thanks to such research it was possible to discover and explain the cognitive processes that underlie the relationship between visual stimuli and hand motor action performed in response to that stimuli. However, many issues still lack explanation. For instance, in case of the visual stimuli, apart from the hand motor response, there is also motor action in the form of the eye movements, and it is not entirely understood how these two types of motor actions mutually influence each other. The goal of this research is to test, how hand motor actions in response to the visual stimulus interact with the accompanying it eye movements. The study will seek the answers to the following questions. In case of the correspondence between motor actions of hand and eyes, will the cognitive processing related to the performance of these actions be faster and less demanding? In case of incongruence, will there be an interference of these motor responses and will the performance of one of them be disrupted? Which existing theoretical model better explains such interaction between different types of motor actions? Importantly, there has not been so far studies on the interaction between hand motor action and eye movements in the response to the dynamic visual stimulus, this is the stimulus that is moving, and this research will be the first to focus on such issue. Thus far the researches focused on static visual stimuli, and because motion is an important aspect of information processing in visual modality, it is the reason why the research is concentrated on this topic. The study will be performed with the use of appropriately designed behavioral experiments, in which different types of dynamic visual stimuli will be presented on the computer screen, and the task of the participant will be to perform hand motor action in the response to that stimuli. The special computer program will record and measure the hand motor action performance on the base of the data from the touchpads. Eye movements accompanying the stimulus-response task performance will be recorded and measured with the use of special equipment, this is the eyetracker device. The indices and parameters of the hand and eye motor actions from different experimental conditions will be analyzed, what will allow to conclude on cognitive processes associated with the interaction between hand motor action and eye movements in response to the dynamic visual stimuli.